ESC Testing

1. Set up the previous circuits
2. Calibrate Minthrottle (63) and Maxthrottle (67)
   1. If given documentation (by ESC), input the values for max/min throttle in ms
   2. Look for PWM signal information
3. Calibrate Mincommand (72)
   1. Depends on receiver
4. Ensure proper PPM channel setup (367)
5. Compile “config.h” to Arduino Nana/Uno
6. Open MultiWii GUI (Explanation: <http://www.multiwii.com/software>)
7. Calib\_Acc on flat surface
8. Calibrate Minthrottle (63) and Maxthrottle (67)
   1. If no documentation, test until motors stop moving
      1. Don’t go to max, as current draw may be too great
   2. Somewhere between 50-75% throttle (Maxes out at ~17.4A)
   3. ~2292g total thrust @ max throttle; ~12500 RPM
   4. Idles @ ~0.5A

Transceiver Testing

1. Set up the transceiver circuit
2. Attempt to connect using phone apps
3. Read values from each input

Determine Min & Max throttle (without propellors)

-> if they stop when changing speed, the values are wrong

Determine Min &Max command values

Test Sensors\*

http://www.multiwii.com/wiki/index.php?title=Extra\_features#ESCsCalibration

ERRORS

i2c errors

-> Bus speed

-> i2c resistor pullups

\*Test Sensors

How should be the sensor axis directions

TILT the MULTI to the RIGHT (left side up):

MAG\_ROLL, ACC\_ROLL and GYRO\_ROLL goes up

MAG\_Z and ACC\_Z goes down

TILT the MULTI forward (tail up):

MAG\_PITCH, ACC\_PITCH and GYRO\_PITCH goes up

MAG\_Z and ACC\_Z goes down

Rotating the copter clockwise (YAW):

GYRO\_YAW goes up

The copter stays level:

MAG\_Z is positive ; ACC\_Z is positive

Magnetic sensors orientation

X MAG:

ROLL RIGHT = positive

ROLL LEFT = negative

Y MAG

PITCH FORWARD = positive

PITCH backward = negative

Z MAG

should be positive

not move a lot if the multi remains flat.

Motor Specs

* KV = 2450
* V = 11.1
* RPM = 27195
* 12N14P
* 32.5g (Motor)
* 57.5g (Motor with wires) => 230g
* 23mm (stator diameter)
* 6mm (stator thickness)
* 28.5mm (motor diameter)
* 18.7mm (motor body length)

Current Limits

* ESC: 30A
* Battery: 17.4375A